# SVT maps and SVT DB

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# Long Term Goals

- Be able to reconstruct SVT status at any given time years from now
- Preserve most of the present svtvme_fer/svtsim  code.
- Preserve flexibility in the introduction of new features
- Enhance operational capabilities of SVT

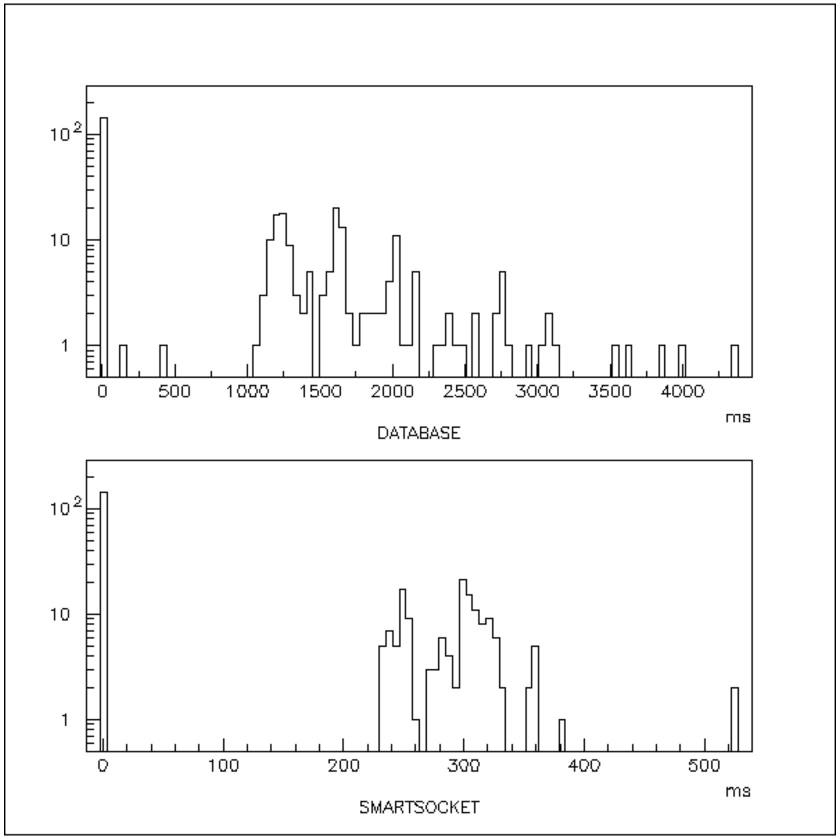
# Issues for the Current Exercise

- Build around Bill and Giovanni ideas of mapset/hwset:
  - Use a binary field (BLOB) in a SVT_DATA table of hdwdb as placeholder of all SVT flatfiles (hwset,mapset,patterns,ssfile,ifit files, gcon)
  - Check retrieval time of the complete coldstart info from the hdwdb by the RC code
  - Feasibility of constructing a huge (1MB) configuration message containing all the information for a given crate
  - Access to the same info from C++
- Understand implications of this approach on the SVT operation

# Lessons learnt in last week work

- A (Java) program to stuff database with SVT files and read them back has been written. Timing to read various files have been measured(see plot).
- Extra time to read SVT constant from DB and construct big messages estimated at 30 sec.
- Made RC code “use” that program to construct a big message and receive it in the crate cpu code (have been printing mapset file from TRIG_imp.c)
- A C++ test program within CDF offline framework could read hdwdb but need to investigate further BLOB methods in C++.

# SVT DB timing/compression needs



- Timing measurement:
  - Fetch a complete (1.5 MB) pattern file in around 1.8 sec (large fluctuation)
  - Mapsets take just about the same (1.5 sec), smaller files take considerably less
  - Time to build a message containing a pattern file around 300 ms

Compressing pattern not an issue for retrieval time but probably still worth the effort

- ➢ what about stripping probabilities, pattern number and using 16 bits per layer?

# Present/Future Analogy

1. Giovanni produces new files
2. Build a new mapset and hwset with emacs
3. Put in rcs repository newly created files
4. Copy new mapset in to default.mapset and update rcs repository

1. Giovanni produces new files
2. Build a mapset and hwset with emacs (or possibly with a python script)
3. Stuff db with new file each with a separate and unique name (a new row in SVT_DATA table)
4. Update the content of an yet to be created SVT_CONFIG table with the new default pair(hwset,mapset)
5. RC code, unless otherwise instructed, will get default (hwset,mapset) from SVT_CONFIG and will stick this same info in to rundb (run configurations DB)

# What does this mean?

- For the ACES, SVT configuration will be as obscure as it is now (unless we want to define later on some limited number of SVT configuration option: 4/5,4*,4/4 L00 ON/OFF , Hi Lum/Low Lum scenarios).
- SVT experts must be “online” to actually let SVT runs in a different mode.
- There is nothing like our pseudo warm start (crc based) unless we define a real warmstart (but if crc fails, ACES has to manually issue config commands) and RC learnd how to handle it
- If a single value of hwset/mapset (e.g. chi2 cut, road limit etc.) changes a new complete entry of the files has to be stored in DB (who is going to be blamed for this?)
- Limited possibilities for selecting runs offline based e.g. on a given set of pattern files used unless you are svtsim, or we maintain very detailed documentation of what each instance of mapset contain

# Current Plan

- Subir and Marco write a more sophisticated RC code to pass all the information presently read from file system through smartsocket
- Test new code using all the crates and possibly other systems as well (1 week)
- Bill adapts svtvme_fer/svtsim code (1-2)
- Subir volunteered to understand what do we need to write a C++ class that read SVT_DATA table in offline jobs
- Need somebody (Bill? Others?) to use this from within svtsim
- If no other technical problem arise by Nov 17 there will be no information crucial for SVT which is not in the DB. Not sure svtsim will be ready with the same time scale
- Understand if this scheme break when sometime in Jan 02 SVT will have a new hardware configuration to get L00 data.